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TA-53 Facility

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TA-53 Procedure

Protection of Co-Located Personnel by Control of Equipment/System Status (Orange Lock Procedure)

53FMP-106-03.1

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APPROVALS

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1.0 Introduction

Some situations require control of equipment/system status for the protection of personnel who may otherwise be subject to harm because of their location with respect to the equipment or system. Examples are controls placed on shield blocks to prevent unauthorized removal of radiation shielding, and preventing the removal of beam plugs which protect personnel downstream of the plug location. Personnel protected by these types of controls often do not have the knowledge necessary to configure the system to provide adequate protection, and must rely on knowledgeable and trained Laboratory employees who take responsibility for protection of the co-located personnel.

2.0 Purpose

This is a recommended TA-53 procedure for controlling equipment/systems status for safety reasons by the use of special orange locks and tags. This procedure does not preclude other means of protecting co-located personnel that provide an equivalent degree of safety, such as the use of "HP" locks. However, line management is responsible for ensuring that adequate personnel protection is provided for personnel engaged in activities described by the scope of this procedure. If this procedure is used, the "shall" statements herein shall be implemented as stated.

3.0 Scope

3.1. General. This procedure covers control of equipment and system status at TA-53 when human safety is a concern *solely* due to location of persons with respect to the equipment or system and the consequences thereof.

Before this procedure is used two questions should be asked: (1) Is there the *possibility* of injuring personnel due to the change of status of an equipment item or a system? (2) Is safety *solely* a function of the physical location of personnel with respect to the equipment or system? If the answers to both of these questions is *yes*, then this procedure applies.

3.2. Examples of situations for use of orange locks and tags. These include but are not limited to the following:

•Locking a system or device which prevents acceleration or delivery of particle beams during maintenance periods. During maintenance activities, personnel protective systems normally in service during beam operation may be compromised. To ensure the safety of all individuals entering accelerator and experimental areas during these periods, devices are locked out to prevent acceleration or delivery of particle beams and thus prevent harmful prompt radiation. This affects all personnel located in the accelerator and experimental complex.

•Locking out lifting devices which are required to move radiation shielding. Shielding configuration is essential for the safety personnel in the vicinity of a prompt radiation source, and unauthorized movement of shielding must be prevented.

•Locking engineered safety interlock systems, such as personnel access control systems, to prevent use. During certain periods, shielding may be removed to allow access to specific areas while particle beams are being delivered to others. To ensure the safety of personnel in the areas where shielding has been removed, the personnel access control system configuration is controlled with orange locks and tags to prevent beam delivery to those areas. Before orange locks and tags can be

removed and beam allowed in the area, a review of the shielding configuration must be performed and documented.

3.3. Nonapplicability. This procedure does not apply to:

•placing security, administrative, or access control locks other than those described above;

•use of engineered systems such as Kirk Keys and systems described by LS 107-01, *Accelerator Access Control Systems*;

•protection of employees performing service, maintenance, or modifications to machinery, equipment, or systems. In such cases LP 106-01, *Lockout/Tagout for Personnel Safety (Red Lock Procedure),* and 53 FMP 106-04, *TA-53 Lockout/Tagout Implementation,* apply;

•control of equipment and system status where *personnel safety is not involved.* LP 106-02, *Lockout/Tagout for control of Equipment and System Status (Blue Lock Procedure)* applies in such cases.

4.0 Definitions

Lock. An orange lock of a type approved by the TA-53 Facility Manager that is used only for the purposes stated in this procedure.

Lockout. Applying a control to maintain the present state, condition, or location of a device. For example, the state or condition may be locked open, closed, on, off, in, or out, to prevent removal from a location, plug disconnect, etc.

System. An item of equipment or a device, machine, or functionally related group of the same.

System supervisor. The individual having the primary responsibility for the operation of a system. The system supervisor may be the same individual appointed by the line manager for LP 106-02 purposes.

System lockout/tagout log. A record maintained by the system supervisor and/or line management showing the current status of all lockout/tagout activities that apply to this procedure.

Tag. An orange warning device and means of attachment, approved for use by the TA-53 Facility Manager. A tag is used by a system supervisor and/or line manager with, or as a substitute (see 7.4) for a lock when the configuration of a system is controlled under circumstances addressed by this procedure.

Tagout. Application of a tag to maintain the present state, condition, or location of a device under the circumstances addressed by this procedure.

5.0 Responsibilities

Who?	Responsibility
Line manager	¥ Appoints system supervisors for systems for which the organization of the line manager is responsible. These individuals may be the same individuals chosen under the Blue Lock Procedure. Ensures that the system supervisors understand the authority and responsibility associated with this position. ¥ Ensures that records of lockouts/tagouts performed under this procedure are maintained. • Ensures that a method of orange lock key control for the organization is established and maintained. • Ensures employees in his/her organizational unit are trained in this procedure. • Has the authority to install and remove orange locks and tags on systems for which s/he has the responsibility.
System supervisor	¥ Has the authority to install and remove orange locks and tags on systems for which s/he has responsibility. • Keeps current knowledge of the systems for which s/he is responsible. • Reviews the system orange lockout/tagout list periodically to ensure all orange locks/tags are still required. If the lock/tag has been in place for more than three months, the system supervisor should review the requirements, verify the lockout/tagout is still warranted, and verify the tags are still legible and in place.
TA-53 Training Office	• Develops and delivers general awareness training on this procedure as part of TA-53 facility-specific training.

6.0 Precautions and Limitations

6.1. Due to the "safety for others" nature of this procedure and the responsibility associated with it, only system supervisors and/or line managers should install or remove orange locks and tags.

6.2. Red locks are used for protection of personnel performing service, maintenance, or modifications to machinery, equipment, or systems. They shall not be used for configuration control.

6.3. Contact the TA-53 Facility Management Office concerning alternate methods of protecting co-located personnel.

6.4. Blue locks and orange tags were previously used for the purpose specified by this procedure, and will be treated as are orange locks until they are replaced. Conversion from blue to orange locks in a timely manner is the responsibility of the group having ownership of equipment or systems affected by this procedure.

6.5. When an engineered safety system providing personnel protection, such as RSS, PSS, or a Kirk Key interlock system fails, or is being serviced, maintained, or modified, the energy source shall be controlled by means that provide a level of protection for co-located personnel that is equivalent to this procedure .

Note: When personnel enter an exclusion area for the purpose of RSS interlock checks when the RSS is in a beam-ready configuration, maintenance/servicing is being performed and *red lock* procedures (LP 106-01 and FMP 106-04) are used to prevent beam delivery.

7.0 Procedural Steps

7.1 Applying Orange Locks and Tags

7.1.1. Preparation. Consider the following items and take appropriate action as part of the lockout/tagout with orange locks and tags:

•Is there potential for stored or residual hazardous energy or the accumulation of stored hazardous energy after the system is aligned?

•How many sources of hazardous energy, hazardous material, or toxic material must be controlled to protect co-located personnel?

•Will this lockout/tagout impact or create hazards in other operations?

•What is the "safe" position of each device that must be controlled?

7.1.2. Configuration. Configure the system appropriately.

7.1.3. Lockout/Tagout.

7.1.3.1. Attach an orange lock and orange tag to the device(s) on the equipment or system which will prevent a change in configuration to an unsafe state. If not prevented by physical constraints, use of a multiple lockout device is desired. This will alleviate the requirement to temporarily remove the lock if another individual wishes to lock and tag the same equipment for another purpose. When a means to lock a device or system is unavailable and only a tag can be used see 7.4, "Using a Tag Only."

7.1.3.2. Write the following on the tag:

•equipment ID
•equipment location (technical area, building room)
•date and time installed
•projected removal date
•required equipment status
•reason tagged
•name, phone, and organization of individual tagging device or system

Tags should be placed where they are clearly visible and do not interfere with or obscure indications, switches, or other control devices.

7.1.4. Verification. Verify the system is appropriately configured.

7.1.5. Notification. Notify the building manager if RP&IE, or plant equipment, is affected. When the LANSCE accelerator is in operation (defined as those times when CCR is staffed 24 hours a day), the Shift Supervisor in CCR shall be notified of changes to control of equipment/system status necessary for the production and delivery of beam to scheduled experiments.

7.1.6. Documentation. Document that the lockout/tagout was applied. The Orange Lock/Orange Tag Logsheet (see attachment) may be used for this purpose.

7.2. Removal of Orange Locks and Tags. The system supervisor or the line manager who installed the locks and tags or has responsibility for the system shall complete the following steps to return the device or system to service.

7.2.1. System Check. Check or verify that conditions affecting the safety of co-located personnel are such that the configuration of the system no longer has to be controlled.

7.2.2. Lock and Tag Removal. Remove the orange lock(s) and tag(s).

7.2.5. Testing. If applicable, test the system to verify that it operates correctly.

7.2.6. Documentation. Document that the lockout/tagout was removed. The Orange Lock/Orange Tag Logsheet may be used for this purpose.

7.3. Temporary Removal of Orange Locks and Tags. The steps in (7.2) and (7.1) must be followed when a lock or tag is removed temporarily from a device or system to test, reposition, or adjust the system.

7.4. Using An Orange Tag Only. Under the conditions specified below, an orange tag may be used without an orange lock. When a tag *only* is used the steps in 7.1 and 7.2 shall be followed.

7.4.1. When a situation arises which requires the application of an orange lock and tag and there is no means to lock the device or system, an orange tag shall be used. *The line manager with the responsibility for the system shall approve the use of an orange tag without a lock*. This approval may be documented on the Orange Lock/Orange Tag Logsheet.

7.4.2. Tags shall be securely attached. If a tag cannot be attached to the device(s) on the equipment or system which will prevent a change in configuration to an unsafe state, it shall be attached as close to that point as is safely possible.

7.5. Key and Lock Control. Orange locks shall have only one key. If the orange lock is supplied with more than one key, the duplicate shall be destroyed. Once a lock is installed the key shall be kept under exclusive control of the system supervisor and/or group manager. The method of key control should be documented. A common key control system may be devised to allow for access by either the system supervisor or group manger. This will provide an alternate means to return the system to service in the absence of either individual. Consequences of lockout and of returning the system to service shall be thoroughly understood by all involved parties.

7.6. Inspection. The responsible line manager should conduct periodic inspections to ensure that the intent of this procedure is met and to correct any observed inadequacies.

7.7. Training.

7.7.1. Individuals are considered trained for the purposes of this procedure if they have taken the current Laboratory training courses on lockout/tagout (Red and Blue Lock) and they have reviewed this document.

7.7.2. System supervisors are appointed by the cognizant line manager after the former have completed training requirements. Documentation of personnel review of this procedure should be retained by the individual's line organization.

7.7.3. General awareness training explaining the purposes, precautions, and limitations for use of orange locks and tags shall be included in TA-53 facility-specific training.

8.0. Records

The following records should be retained and updated as necessary:

- Lockout/Tagout Logsheet or equivalent
- Documentation of Personnel Review of Orange Lockout/Tagout Procedure
- List of Appointed System Supervisors
- Documentation of Method of Key Control

9.0. References

9.1. 53FMP 106-04, *TA-53 Lockout/Tagout Implementation .*

9.2. LP 106-01, *Lockout/Tagout for Control of Hazardous Energy Sources for Personnel Safety (Red Lock Procedure)*

9.3. LP 106-02, *Lockout/Tagout for Control of Equipment and Systems Status (Blue Lock Procedure)*

9.4. LS 107-01, *Accelerator Access Control Systems*

10.0 IMPLEMENTATION SCHEDULE

This procedure takes effect on the date shown on the cover. Blue locks and orange tags should be replaced by orange locks and tags at the next instance after the release of the procedure that the equipment or system is reconfigured, and no later than December 31, 1995. TA-53 facility-specific training shall include general awareness training on this procedure by March 31, 1996.

11.0 ATTACHMENTS

Attachment A: Control of Equipment and Systems Status Lockout/Tagout Logsheet